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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/588,628	06/07/2000	Kazutaka Shibata	ROH-023	8757

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EXAMINER

HA, NATHAN W

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 08/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/588,628

Applicant(s)

SHIBATA, KAZUTAKA

Examiner

Nathan W. Ha

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-9 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-9 and 18-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 20.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 4-5, 7-8, and 18-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakazawa et al. (US 6,228,665 newly cited.)

In regard to claims 1, 7, and 18-20, in figs. 1-2, Nakazawa discloses a semiconductor device (package) 10, comprising:

a semiconductor chip 12 having an active surface and an inactive surface disposed opposite side of the active surface, therein, see fig. 1;

protective resin 13 covering a sidewall of the semiconductor chip and having a surface formed so as to be flush with the inactive surface of the semiconductor chip; see also col. 9, lines 26-32;

a board 11 having a surface on which the semiconductor chip is mounted and an opposite surface; and

an external connecting terminal in the area 18 at the bottom of the chips joined to the surface of the board that is facing away from the chip, solder balls, for example, the external connecting terminal being connected to the active surface of the chip; see also col. 9, lines 40-47,

wherein the protective resin is permanently joined to the surface of the board and the external connecting terminal is permanently joined at the opposite surface of the board; see also the final structure of the package in fig. 14, for example.

In regard to claim 2, Nakazawa further discloses an external connecting terminal 18 electrically connected to the active surface of the chip and exposed to the outside of the resin, see fig. 1.

In regard to claim 4, Nakazawa discloses a board 11 which semiconductor chip is joined, see fig. 1.

In regard to claims 5 and 8, the board 11 is wiring board, see fig. 2 and col. 9, lines 25-28.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakazawa as applied to claims 1-2, 4-5, 7-8, and 18-20 above, and further in view of Hikita et al. (US 6,376,915, newly cited, hereinafter Hikita.)

In regard to claims 6 and 9, Nakazawa discloses all of the claimed limitations as mentioned above, except the board is another semiconductor chip to constitute a chip-on-chip structure as a whole. It should be noted that the chip-on-chip is widely used in the art of semiconductor packaging since the stacking method significantly reduces space area in packaging devices. For instance, Hikita, in fig. 3, discloses an analogous chip-on-chip semiconductor package includes board 53, first chip 51 and second chip 52 which is piled on the first chip.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to substitute the chip-on-chip structure as taught by Hikita in Nakazawa's in order to obtain the advantage as mentioned above.

Response to Arguments

6. Applicant's arguments with respect to claims 1, 7, 18-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

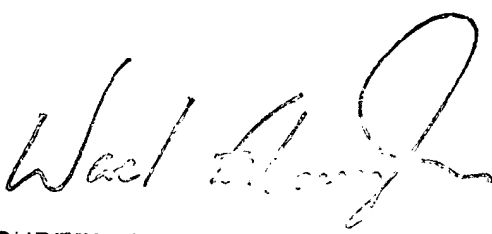
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Ha whose telephone number is (703) 305-3507. The examiner can normally be reached on M-TH 8:00-7:00(EST).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703) 308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and 308-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Nathan Ha
July 21, 2003


SUPERVISOR/PRIMARY EXAMINER
TECHNOLOGY CENTER 2800